ANNUAL REPORT

of the

DAIRY PROCESSING

and

DAIRY PRODUCTION BRANCHES

for the Year

1986 – 1987

Alberta
AGRICULTURE

Supplement to the
Alberta Dairy Control Board Annual Report

88-00999/

ANNUAL REPORT

OF THE

DAIRY PROCESSING BRANCH

AND

DAIRY PRODUCTION BRANCH

FOR THE FISCAL YEAR

1986 – 1987

DAIRY STAFF

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HEAD, DAIRY PRODUCTION BRANCH — E. S. Bristow, B.Sc., P.Ag.
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* denote staff that report to Field Services sector.

DAIRY PRODUCTION BRANCH

Dairy production branch responsibilities included dairy farm inspection services, the milk grade and price program, technical resource services and information, support and co-ordination for the regional dairy extension delivery system. Data processing and record utilization advisory services were provided to Alberta dairymen participating in the Alberta dairy herd improvement program. A grant of approximately 50% of the cost of field services is provided to Alberta Dairy Herd Improvement Services.

Initiatives undertaken by the branch during 1986-87 included the following:

- converted all D.H.I. herds to the new national milk recording program in May, 1986 in cooperation with Alberta Dairy Herd Improvement Services;
- introduced a certificate of excellence program to recognize Alberta milk producers who consistently produce superior quality milk from well maintained premises;
- co-operated with industry in a study to evaluate the use of milk meters on milk transport vehicles;
- assisted the Alberta Dairymen's Association in introducing a Dairy Farm Beautification Award;
- encouraged and supported an introductory study to assess the possible impact of a multi-component pricing system on Alberta's dairy industry;

- introduced a numerical rating system for dairy farm inspection purposes;
- updated and distributed revised chapters of the Dairy Production Course.

Resource Services

The dairy production branch provided resource materials, co-ordination and training to staff and agri-business personnel. Assistance was provided to regional staff in conducting workshops and seminars on a wide range of dairy production issues. Featured topics included condition scoring, raising replacements, quota management, mastitis control and ration balancing.

A highlight of the year was a series of three reproduction meetings featuring Dr. Jack Britt, North Carolina State University. The meetings in Lethbridge, Olds and Nisku were attended by approximately 500 people.

Regional staff conducted workshops on making effective use of the information provided by the new D.H.I. program format.

The Alberta Dairy Production Course was updated and all registered holders received the new versions of three chapters. To date, in excess of 800 copies of the course have been distributed at a cost of $30.00 each. Supplementary materials in the form of fact sheets, slide presentations and newsletter articles were prepared.

Branch staff assisted the Alberta Dairymen's Association in introducing a Farm Beautification competition. Provincial and regional winners were selected on the basis of landscaping and general condition of the farmstead. The presentation of awards was made at the annual Alberta Dairymen's Association Convention.

The fifth annual Alberta Dairy Seminar was held in Banff. The seminar was jointly sponsored by the University of Alberta, Alberta Milk Producers' Association and Alberta Agriculture. Topics covered included: free trade, raising replacements, genetic improvement, biotechnology and multiple component pricing. This event continues to grow in popularity with both producers and agri-business. The proceedings were recorded on audio cassette for use in workshops and individual consultations. The proceedings manual was provided to all participants and made available to others at minimal cost.

Several fact sheets were prepared by, or in cooperation with, branch staff. Topics included milking management, reproduction and the use of D.H.I. information.

The newsletter "Alberta Dairy Producer" was published monthly. Branch staff, regional dairy specialists and other department staff increased their involvement in writing articles for the newsletter. This publication continues to be a very widely read source of marketing and production information for the dairy industry.

In-service training programs were conducted for department staff and agri-business. Topics covered included ration formulation

programs, use of D.H.I. information, milk marketing and enterprise analysis. Seminars designed specifically for lenders continued to be well received.

Dairy Farm Inspection

Inspection and advisory services were provided to Alberta dairymen in the areas of milk quality, milk production, equipment standards, construction and upgrading of dairy facilities.

Dairy farm inspection staff performed 3,155 farm inspections in 1986-87 and an additional 1,474 farm consultations. A numerical farm inspection report was introduced to enhance the inspection program. The new format improved the ability of staff to complete an objective analysis of dairy farm sanitation and maintenance practices.

The milk grade and price program and the advisory services provided to producers continued to contribute to the excellent quality of milk produced in the province in 1986. The milk processors, through farm service programs continued to support milk quality improvement on dairy farms.

A total of 38,561 milk samples were analyzed for compliance with current milk quality standards. The milk grade and price program, during the twelve month period ending March 31, 1987 recorded 119 Standard Plate Count violations, 24 Freezing Point violations and 105 Inhibitor violations - totalling 248 violations, a decrease of 25

violations from the year previous. Forty seven loads of milk were destroyed due to inhibitor contamination.

Funds collected from producers resulting from milk grade deductions were allocated to pay innocent producers for lost milk and to compensate milk transport operators when confirmation was required for suspicious positive loads and for disposal of loads tested positive. The remainder of the funds were redistributed to all milk producers on a monthly basis by the Alberta Dairy Control Board.

A non-compliance rate of 4.3% was achieved in the fluid milk sector, an improvement of .5% from the previous year. The industrial milk sector also improved their non-compliance rate. Of the industrial milk producer samples, 87.1% complied with fluid microbiological standards.

At March 31, 1987 there were 1,549 milk producers in Alberta, a decline of 18 from the previous year. Of that total, 1,519 were certified and 30 were classified as industrial. Industrial producer numbers declined by 79 from the previous year as producers continued to upgrade their facilities to meet industry certification requirements or voluntarily discontinued milk production.

Bulk milk somatic cell counts continued to be monitored and advisory assistance was provided to reduce the incidence of mastitis in dairy herds. Bulk milk tank somatic cell counts averaged 364,490 cells per millilitre for fluid producers and 618,570 cells per millilitre for

industrial producers. These averages indicate that continued effort is required in the area of mastitis prevention and control.

The Alberta Award of Excellence sponsored by Alberta Agriculture was introduced in 1986 to recognize dairy producers for excellence in quality milk production and maintenance of dairy premises. Seventy six milk producers were presented with the award at the annual Alberta Dairymen's Association Convention in February 1987.

TABLE 1

The following table summarizes the activities of Dairy Farm Inspection. Comparisons are based upon April 1 to March 31 year basis.

	1985-86	1986-87
Number of Certified Milk Producers	1,458	1,519
Number of Industrial Milk Producers	109	30
TOTAL PRODUCERS	1,567	1,549
Inspections of Dairy Farm Premises	3,680	3,155
Non-Inspection Dairy Farm Calls	896	1,474
TOTAL FARM CALLS	4,576	4,629
TOTAL RAW MILK SAMPLES ANALYZED	40,406	38,561
Quality of Milk Samples Analyzed		
Fluid Milk Samples Non-Compliance (75,000/mL S.P.C.)	4.8%	4.3%
Industrial Milk Samples Non-Compliance (200,000/mL S.P.C.)	5.3%	4.0%
Industrial Milk Samples which met Fluid Milk Standards	94.7%	87.1%
Average Somatic Cell Counts (Leucocytes) - Fluid	402,791	364,490
- Industrial	596,352	618,570
Number of Violations - SPC	156	119
- Inhibitors	101	105
- Cryoscopic Analysis	16	24
TOTAL VIOLATIONS	273	248

Number of Violations

	1982-83	1983-84	1984-85	1985-86	1986-87
1 Violation	405	212	199	179	153
2 Violations	127	87	73	64	63
3 Violations	52	27	33	19	19
4 Violations	18	7	7	10	7
More than 4	16	9	4	2	6

Milking Management

Milking management specialists completed 113 milking equipment checks during the year. Troubleshooting, cleaning problems and bulk tank malfunctions constituted another 46 farm calls. A total of 26 stray voltage investigations were completed. Consultations were provided concerning design and installation of new milking systems and reduction of somatic cell counts which are an indicator of udder infections (mastitis).

A total of 38 new milking systems were approved, down from 52 the previous year.

Seminars were conducted for department and industry relating to milking equipment function, design and procedures used to evaluate milking systems. This information was also presented at the Veterinary College in Saskatoon to students, staff, Saskatchewan government and industry personnel.

Milking equipment and management resource information was developed in fact sheet format. A film titled "Milking Management" was produced for use in dairy extension programs.

A milk metering system was purchased and installed in a bulk milk truck owned and operated by Alpha Milk Co., Red Deer. The function of this meter is being evaluated under Alberta conditions. The dairy industry throughout North America is keenly interested in this project. Canada Consumer and Corporate Affairs, Weights and

Measures personnel are also cooperating with the branch in determining design and function specifications of truck mounted milk metering systems.

This study of milk meters evolved from an on-going concern of the branch about the accuracy of measuring milk volumes in farm bulk milk tanks. Truck mounted milk meters for milk measurement at the farm are widely used in Europe.

Milk Recording

The branch cooperated with Alberta Dairy Herd Improvement Services and Alberta Public Works in conversion to the new national milk recording program in May 1986. Cooperation has continued by identifying and resolving program problems within the system through monitoring the processing of the data.

Significant improvements in service provided to the DHI customer occurred during the year, such as reduced turn-around time of herd reports which include monthly herd and cow production summaries used for herd management purposes.

Annual fees, as determined and administered by Alberta Dairy Herd Improvement Services, increased to $5.50 per cow for owner-sampler and $19.00 per cow for supervised services. Fees for individual cow somatic cell counting remain unchanged at $2.00 per cow per year.

The summary reports generated by the new milk recording program provided an actual count of the number and status of the cows and herds active within the DHI program on a particular day. The previous system provided statistics which were accumulative totals of all cows and herds tested once or more during the year.

Effective December 1, 1986 Alberta Dairy Herd Improvement Services assumed administration of field services for ROP herds in Alberta and annual milk recording reports will now reflect some ROP statistics.

1986 Statistics:

*Participation in Milk Recording Program in Alberta (January 1, 1987)

Service Level	Number of Herds	Number of Cows	Herd Size	Cows On SCC
SUPERVISED	118	8,898	74	36,789 (71%)
OWNER-SAMPLER	668	42,730	64	
ROP**	133	8,558	64	4,399 (51%)
TOTAL	919	60,186	65	41,188 (68%)

* Production Statistics for 1986 are not available at annual report preparation time.

**A federal Record of Performance program primarily for registered dairy cattle in Canada.

DAIRY PROCESSING BRANCH

Overview

Total milk supply was up slightly from the previous year. Fluid milk sales, on a per capita basis, continued to improve but were still significantly below the level of five years ago. Better quota management by producers resulted in less milk being shipped out of the province during the "flush" season. During this time the milk drying plants and some cheese manufacturing plants were operating at maximum capacity.

Dairy Manufacturing Plants

The renovation and modernization of most plants continued in varying degrees of complexity. A high level of interest continued for the establishment of dairy manufacturing plants, particularly for the manufacturing of cheese. Although several enquiries were received, few applications were made because of high cost and uncertainty of milk supply.

Existing plants continued to investigate the addition of product lines to their operation. Two plants applied for an expansion of their licence coverage to include frozen dairy products, and one applied for coverage for cultured dairy products. A plant in the south west part of the province ceased the processing of fluid milk to devote their full attention to the manufacture of cheese. The cheese plant in the south-

east part of the province that commenced initial operation last year is now fully operational. A small repacking operation for milk powder came on stream after several years of selling consumer sized packages purchased from outside the province. A small family operated cheese plant started manufacture of specialty cheese in the Edmonton area and will be catering to the Italian and Portuguese markets.

A major program was introduced during the year for the inspection and testing of milk pasteurization units. All components of the pasteurizers are inspected and subjected to a variety of tests to ensure that all dairy products processed through them are effectively pasteurized and that the pasteurized products cannot be contaminated with raw product. Several modifications and additional controls were necessary for most plants. The completion dates have had to be extended because of lack of availability of the components, due to the high priority given to upgrading pasteurizers by almost all jurisdictions in North America.

Plant inspection programs were continued to ensure compliance of all Alberta dairy manufacturing facilities and their products with existing regulations.

The branch continued to participate in the federal in-depth plant inspection program. Most of the fluid milk processing plants are newly built or recently renovated and continue to receive high scores upon inspection.

New inspection quidelines were introduced by Agriculture Canada after consultation with the provinces. These guidelines reflect new technologies, equipment and components available to the industry. As a result of these, the plant scores dropped slightly in all areas. Current positions and comparative data for last year is as follows:

	1985-86	1986-87
Alberta Average Plant Score	88.1	86.1
National Average Plant Score	82.7	82.6
Lowest Scoring Plant In Alberta	77.4	76.4
Highest Scoring Plant in Alberta	99.6	99.1

Dairy Products

Bacteriological and compositional standards of fluid and manufactured dairy products remained very high and substantially higher than the regulatory minimum. The branch continued to concentrate on milk product keeping quality as reflected by a stressed product test as the yardstick by which quality was measured. This more stringent test is necessary since products must remain fully acceptable to consumers after sometimes lengthy periods in the distribution system, not always under ideal storage conditions. Dairy processing specialists investigated isolated lapses in quality rather than chronic difficulties in producing satisfactory products.

Virtually all freshly processed milk met Health Standards. After subjection to severe conditions (7 days at 7°C), 73.0% were still within requirements of Board of Health regulations. The branch continues to work towards 100% compliance at both levels.

Farm separated cream volumes continue to diminish as these producers either convert to industrial milk or phase out of the dairy business. One of the three remaining plants that rely on farm separated cream has announced their intention to cease operation as volumes no longer make it viable.

Licensing

Licenses Issued	1985-86	1986-87
Milk & Cream Graders & Testers	95	90
Cream Graders	66	65
Plant Milk Graders	81	135
Bulk Tank Milk Graders	285	287
Dairy Manufacturing Plant	40	37

Regulatory

Dairy Processing Specialist activities in regulatory functions were:

	1985-86	1986-87
Dairy Plant Inspections	427	400
Cream Grades Checked	1,343	958
Cream Grades Adjusted	4	1
Cream Tests Checked	590	484
Cream Tests Adjusted	4	2
Bulk Tank Trucks & Drivers Inspected	117	150

Margarine

The branch's responsibilities under the Margarine Act were carried out at a similar level of activity as in previous years.

Margarine produced and/or sold in the province was sampled and analyzed throughout the year and found to comply fully with compositional requirements. There were continued attempts to market imitation dairy products in contravention of the Dairy Industry Act. As well as infringing on the Dairy Industry Act, methods used by promoters frequently contravened other regulations, e.g. those of the Health Protection Branch and Consumer and Corporate Affairs. This branch will continue to collaborate with other agencies to regulate the activities of promoters of imitation dairy products.

Extension

Dairy processing specialists worked closely with dairy processors in the implementation of technological changes and in broadening the range of dairy processing in the province. A major extension activity in recent years has been a voluntary Certification Program for dairy plant employees to assist in attaining improved quality through increased education and awareness. Lower turnover of staff in most dairy plants accounts for the reduction in issue of Dairy Plant Worker certificates. The awarding of certificates in specialist categories such as Cheesemaker, Plant Sanitarian, and Pasteurizer Operator, has increased.

The licensing of Milk and Cream Graders and Testers, and Bulk Milk Graders is a legislative responsibility of this branch. In view of the important role of the Bulk Milk Grader in the collection of samples by which the producer is paid, especially since the introduction of the

milk grade and price program, the branch has increased emphasis on testing, retesting and inspection of Bulk Milk Graders.

Together with Agriculture Canada and the Alberta Dairymen's Association, the processing branch continues to be active in sponsoring and judging dairy product quality competitions. Most competitions are based on monthly samples. Winners are recognized annually at the Dairymen's Convention.

Branch staff have worked closely with some health units in the development and implementation of an inspection program for soft serve ice cream retail outlets.

Increased emphasis was placed on improving the quality of cultured dairy products. A project was developed to use the facilities at the Food Processing Development Centre to investigate the use of new technology in the manufacture of yogurt.

Special Projects

The principle activity of Special Projects to March 31, 1987 was the preparation of amendments to the Dairy Industry Act and relevant changes in the proposed new Dairy Industry Regulations under the Act.

Other activities related to an investigation of the security requirements for dairy manufacturing plants under the Dairy Industry Act; the preparation of a proposal to establish a dairy producers'

protection fund for discussion with industry; ongoing consultation with industry on regulatory and legislative matters; investigating and assisting in the resolution of problems associated with the dairy industry.

TABLE I Estimated Farm Value of Alberta Milk Production April 1986 - March 1987

The quantity, price, value and utilization of milk production during April 1986 to March 1987 is reported in the following table. To indicate changes from the previous year, 1985-86 figures have been included.

	Year	Butterfat Production ' 000 kg	Milk Equivalent '000	% of Total	Prices $	Value $'000
Butterfat for Creamery Butter	1986-87	787	28,485 L	3.88	4.622/kg	3,638
	1985-86	870	24,160 L	4.30	4.427/kg	3,852
Milk Purchased for the Manufacture of Powder and Butter (1)	1986-87	4,018	114,790 L	19.81	39.41/hL	45,239
	1985-86	3,696	102,556 L	18.24	38.49/hL	39,474
Milk for Cheesemaking	1986-87		110,212 L	19.02	39.41/hL	43,435
	1985-86		107,469 L	19.11	38.49/hL	41,365
Milk for Concentrating and Milk & Butterfat for Ice Cream & Misc. Products (2)	1986-87		54,963 L	9.49	41.21/hL	22,650
	1985-86		49,731 L	8.84	40.29/hL	20,037
Milk Purchased for Fluid Purposes	1986-87		256,694 L	44.31	49.31/hL	126,576
	1985-86		256,588 L	45.64	50.62/hL	129,885
Kept on Farms, Skimmilk for Creamery Butter	1986-87	708	20,228 L	3.49	18.27/hL	3,696
	1985-86	783	21,744 L	3.87	17.56/hL	3,818
Estimated Federal Subsidy	1986-87					19,852
	1985-86					18,784
TOTAL	1986-87		579,372			265,086
	1985-86		562,248			257,215

(1) Includes milk used for the making of cottage cheese.

(2) Does not include butterfat from creamery butter used in the manufacture of ice cream

TABLE II Estimated Production and Value of Factory Dairy Products April 1986 - March 1987

The following table shows the quantity, price and value of dairy products manufactured or processed in Alberta dairy manufacturing plants during April 1986 to March 1987, with corresponding figures for 1985-86 added to provide a means for comparison.

	Year	Quantity ' 000	Price $	Value $ '000
Creamery Butter (kgs)	1986-87	7,409 kg	5.454/kg	40,408
	1985-86	6,372 kg	5.320/kg	33,899
Cheddar Cheese (kgs)	1986-87	6,822 kg	6.746/kg	46,021
	1985-86	6,315 kg	6.639/kg	41,925
Variety Cheese (kgs)	1986-87	5,022 kg	5.766/kg	28,957
	1985-86	5,220 kg	5.554/kg	28,992
Ice Cream (litres) (1)	1986-87	31,108 L	1.850/L	57,549
	1985-86	31,287 L	1,730/L	54,127
Fluid Milk Sales (litres)	1986-87	215,084 L	.790/L	169,916
	1985-86	217,841 L	.823/L	179,283
Fluid Cream Sales (litres)	1986-87	9,520 L	1.570/L	14,946
	1985-86	9,323 L	1.680/L	15,663
Fluid Skimmilk, Buttermilk and Chocolate Sales (litres)	1986-87	32,385 L	.862/L	27,916
	1985-86	28,868 L	.923/L	26,645
Miscellaneous Manufactured Products (2)	1986-87			122,189
	1985-86			108,697
TOTAL	1986-87			507,902
	1985-86			489,231

(1) Includes hard and soft ice cream.

(2) Includes concentrated milk products, cottage cheese, whey cheese and yoghurt.

ALBERTA DAIRY STATISTICS

TABLE III — Milk Production and Utilization

Year	Total Milk Production in Millions of Units	Creamery Butter	Dairy Butter	Cheese	Miscellaneous Factory Products	Milk and Cream Consumed	Farm Fed Animals
		Percentage of Total Milk					
1945	1,461 lb.	55.6	7.0	3.1	3.1	24.5	6.7
1950	1,375 lb.	53.2	8.1	2.4	4.6	25.6	6.1
1955	1,438 lb.	51.0	4.6	1.7	5.5	32.3	4.9
1960	1,650 lb.	52.9	3.5	1.3	7.2	30.0	5.1
1965	1,641 lb.	52.1	1.6	1.7	8.1	30.7	5.8
1970	1,529 lb.	44.9	1.3	2.8	11.2	33.6	6.2
1973	1,396 lb.	39.0	0.8	5.4	12.8	35.4	6.6
1974	1,284 lb.	34.1	----	6.5	13.5	38.9	7.0
1975	1,276 lb.	37.7	----	7.5	12.0	35.7	7.1
1976 fiscal	1,273 lb.	31.6	----	8.3	12.5	38.4	9.2
1977 fiscal	1,251 lb.	30.7	----	10.3	10.4	41.8	6.8
1978 fiscal	426 hL	27.6	----	11.2	10.6	44.1	6.5
1979 fiscal	450 hL	33.1	----	12.3	11.4	43.2(1)	----
1980 fiscal	480 hL	37.9	----	11.2	10.6	40.3(1)	----
1981 fiscal	528 hL	29.4	----	5.6	9.2	52.8(1)	----
1982 fiscal	585 hL	28.5	----	14.4	11.7	45.4(1)	----
1983 fiscal	564 hL	28.6	----	11.4	9.1	45.7(1)	----
1984 fiscal	584 hL	29.1	----	14.2	8.9	43.3(1)	----
1985 fiscal	562 hL	22.5	----	19.11	8.8	45.6(1)	----
1986 fiscal	579 hL	23.7	----	19.0	9.5	44.3(1)	----

(1) Milk Farm Home Consumed amount usually included in this figure is no longer available.

TABLE IV — Total Value of Dairy Products*

	$ '000		$ '000
1925	23,002	1974	126,114
1930	19,676	1975	154,739
1935	14,253	1976 fiscal	180,047
1940	17,324	1977 fiscal	200,333
1945	29,325	1978 fiscal	228,457
1950	42,513	1979 fiscal	241,628
1955	51,942	1980 fiscal	322,324
1960	65,187	1981 fiscal	379,877
1965	69,080	1982 fiscal	449,185
1970	82,849	1983 fiscal	509,230
1971	84,569	1984 fiscal	493,120
1972	87,844	1985 fiscal	495,331
1973	104,535	1986 fiscal	507,902

* Total value of all manufactured and processed products including that portion of milk and by-products utilized on farms.

TABLE V

Farm Value of Milk Production

	$ '000		$ '000
1965	51,170	1979 fiscal	159,322(3)
1970	62,883(1)	1980 fiscal	192,459
1973	78,484	1981 fiscal	226,491
1974	101,185	1982 fiscal	246,219
1975	116,826	1983 fiscal	236,342 R
1976 fiscal	129,473	1984 fiscal	257,491 R
1977 fiscal	145,220(2)	1985 fiscal	257,215
1978 fiscal	153,570	1986 fiscal	265,086

(1) From 1970 forward, includes Federal Government Subsidy.
(2) From 1977 forward, price is F.O.B. Factory rather than F.O.B. Farm.
(3) Total no longer includes values of Milk Farm Home Consumed and Fed Farm Animals. The comparative 1978 figure excluding these two values is 140,465.
R Revised Statistics

TABLE VI

Value of Factory Dairy Products

Year	Creamery Butter	Cheddar Cheese (1)	Specialty Cheeses	Ice Cream	Fluid Milk and Cream	Skimmilk, Buttermilk and Whey	Miscellaneous Manufactured Products	Total
	Thousands of Dollars							
1965	19,641	882	Nil	6,605	22,028	1,172	7,894	58,222
1970	19,987	1,750	Nil	9,747	28,262	1,636	10,605	71,987
1973	17,550	3,456	Nil	12,474	38,184	2,779	19,092	93,535
1974	16,538	4,820	Nil	14,889	55,177	3,154	20,973	115,551
1975	23,895	7,194	2,406	17,611	61,799	6,180	23,692	142,777
1976(2)	20,921	7,693	3,252	18,461	70,558	14,434	24,304	159,673
1977	23,799	9,604	4,557	18,796	79,940	17,088	26,784	180,568
1978	21,049	11,063	6,708	20,107	104,867	17,029	28,275	209,098
1979	23,821	11,056	9,111	19,996	125,317	21,026	31,301	241,628 R
1980	27,992	15,135	12,194	31,587	181,958	------	40,531	309,397 R
1981	35,435	18,369	14,576	34,563	200,140	------	59,180	362,263 R
1982	40,358	24,259	18,554	38,360	213,353	------	88,657	423,541 R
1983	40,014	26,487	17,948	48,499	217,713	------	143,942	494,603 R
1984	42,641	38,242	20,980	53,477	225,010	------	112,770	493,120 R
1985	33,899	41,925	28,992	54,127	227,691	------	108,697	495,331
1986	40,408	46,021	28,957	57,549	212,778	------	122,189	507,902

(1) Factory Cheese value includes net increase in processing.
(2) Fiscal year from 1976 forward.
R Revised Statistics

TABLE VII

The Production and Value of Ice Cream

Year	Production '000	Price	Value $ '000
1955	2,716 gal	1.60/gal	4,346
1960	3,623 gal	1.63/gal	5,905
1965	5,242 gal	1.26/gal	6,605
1970	5,634 gal	1.73/gal	9,747
1973	6,332 gal	1.97/gal	12,474
1974	6,588 gal	2.26/gal	14,889
1975	6,671 gal	2.64/gal	17,611
1976 fiscal	6,713 gal	2.75/gal	18,461
1977 fiscal	6,835 gal	2.75/gal	18,796
1978 fiscal	31,859 L	0.631/L	20,107
1979 fiscal	30,343 L	0.659/L	19,996
1980 fiscal	31,906 L	0.990/L	31,587
1981 fiscal	27,873 L	1.240/L	34,563
1982 fiscal	27,797 L	1.380/L	38,360
1983 fiscal	30,891 L	1.570/L	48,499
1984 fiscal	31,457 L	1.700/L	53,477
1985 fiscal	31,287 L	1.730/L	54,127
1986 fiscal	31,108	1.850/L	57,549

TABLE VIII

The Production and Value of Creamery Butter

Year	Creameries	Production '000	Av. Output Per Creamery '000	Selling Value Total $ '000	Cents
1955	89	31,326 lb.	352 lb.	18,041	57.59/lb.
1960	86	37,338 lb.	434 lb.	23,265	62.31/lb.
1965	80	36,562 lb.	457 lb.	19,641	53.72/lb.
1970	56	29,311 lb.	523 lb.	19,987	68.19/lb.
1973	46	23,282 lb.	506 lb.	17,550	75.38/lb.
1974	33	18,695 lb.	567 lb.	16,538	88.46/lb.
1975	31	20,587 lb.	664 lb.	23,895	116.07/lb.
1976 fiscal	22	17,843 lb.	811 lb.	20,921	117.25/lb.
1977 fiscal	20	18,342 lb.	917 lb.	23,799	129.75/lb.
1978 fiscal	19	6,946 kg	366 kg	21,049	303.03/kg
1979 fiscal	17	7,117 kg	419 kg	23,821	334.71/kg
1980 fiscal	16	7,863 kg	491 kg	27,992	356.00/kg
1981 fiscal	13	8,260 kg	635 kg	35,435	429.00/kg
1982 fiscal	13	8,475 kg	652 kg	40,358	476.20/kg
1983 fiscal	13	7,800 kg	600 kg	40,014	513.00/kg
1984 fiscal	11	8,161 kg	742 kg	42,641	522.50/kg
1985 fiscal	11	6,372 kg	579 kg	33,899	532.00/kg
1986 fiscal	11	7,409 kg	674 kg	40,408	545.40/kg

TABLE IX The Production and Value of Cheddar and Variety Cheeses

Year	Factories C	Factories V	Production '000 C	Production '000 V	Av. Output Per Factory '000 C	Av. Output Per Factory '000 V	Selling Value Total $ '000 C	Selling Value Total $ '000 V	Selling Value Cents C	Selling Value Cents V
1950	14		2,940 lb.		210 lb.		1,030		35.05	/lb.
1955	10		2,151 lb.		215 lb.		694		32.25	/lb.
1960	7		1,760 lb.		261 lb.		671		39.55	/lb.
1965	6		2,188 lb.		365 lb.		882		40.31	/lb.
1970	6	3	3,357 lb.	155 lb.	560 lb.	52 lb.	1,750	---	52.13	--- /lb.
1973	7	4	4,768 lb.	913 lb.	681 lb.	228 lb.	3,456	---	72.48	--- /lb.
1974	6	6	4,884 lb.	2,186 lb.	814 lb.	365 lb.	4,820	---	98.69	--- /lb.
1975	7	6	6,307 lb.	2,406 lb.	901 lb.	401 lb.	7,914	2,296	113.35	95.43/lb.
1976*	7	6	6,872 lb.	3,161 lb.	982 lb.	510 lb.	7,693	3,193	111.95	101.02/lb.
1977	6	6	8,013 lb.	4,557 lb.	1,335 lb.	759 lb.	9,604	5,462	119.86	119.86/lb.
1978	6	8	3,935 kg	2,386 kg	656 kg	298 kg	11,063	6,708	281.14	281.14/kg
1979	6	11	3,649 kg	3,007 kg	608 kg	273 kg	11,056	9,111	302.99	302.99/kg
1980	6	11	3,921 kg	3,159 kg	654 kg	287 kg	15,135	12,194	308.60	308.60/kg
1981	6	11	3,599 kg	3,321 kg	600 kg	302 kg	18,369	14,563	510.40	438.52/kg
1982	6	10	4,023 kg	3,651 kg	671 kg	365 kg	24,259	18,554	603.00	508.18/kg
1983	6	10	4,160 kg	3,533 kg	693 kg	353 kg	26,487	21,820	636.71	508.00/kg
1984	6	10	5,768 kg	3,787 kg	961 kg	379 kg	38,242	20,980	663.00	554.00/kg
1985	6	10	6,315 kg	5,220 kg	1052 kg	522 kg	41,925	28,992	663.90	555.40/kg
1986	6	10	6,822 kg	5,022 kg	1137 kg	502 kg	46,021	28,957	674.60	576.60/kg

*Fiscal year from 1976 forward.

TABLE X Butterfat Received as Cream on a Monthly Basis

	1981	1982	1983	1984	1985	1986
	Percentage Change from Previous Year					
April	-18.00	- 4.35	-27.31	-10.01	-7.97	-13.86
May	-23.16	-12.55	-17.15	- 9.83	-14.05	-12.31
June	-11.30	-15.20	-25.08	-10.91	-19.96	- 3.36
July	-17.58	-14.20	-35.69	+ 6.87	-17.98	- 8.28
August	-19.45	- 4.39	-16.09	-14.07	-18.86	-16.92
September	-19.85	- 7.71	-17.21	-22.70	-14.92	- 4.64
October	-16.93	-10.16	-21.48	- 8.71	-21.68	- 9.66
November	- 4.93	- 6.75	-22.29	- 8.70	-27.67	-10.38
December	- 6.81	-16.47	-15.38	-15.85	-17.79	- 5.48
January	- 9.81	-13.09	-11.72	-10.66	-19.82	-13.93
February	- 9.43	-15.76	-11.37	-11.20	-19.83	-11.53
March	- 6.17	-18.63	-12.39	-19.32	-17.53	- 2.65
Total Year	-15.11	-11.37	-20.84	-11.17	-17.90	- 9.56

TABLE XI Milk Cow Numbers and Average Production

Year	No. Cows June 1st	Average Milk	Production Butterfat
1950	297,800	4,617 lb.	166.2 lb.
1955	285,000	5,044 lb.	176.5 lb.*
1960	279,000	5,915 lb.	207.0 lb.
1965	262,000	6,264 lb.	219.2 lb.
1970	198,000	7,721 lb.	270.2 lb.
1973	169,000	8,265 lb.	289.3 lb.
1974	169,000	7,595 lb.	265.8 lb.
1975	170,000	7,507 lb.	262.7 lb.
1976	152,000	8,376 lb.	293.2 lb.
1977	155,000	8,072 lb.	282.5 lb.
1978	148,000	2,878 L	103.6 kg
1979	135,000	3,333 L	119.9 kg
1980	138,000	3,478 L	125.2 kg
1981	142,000**	3,718 L	133.8 kg
1982	158,000**	3,450 L	124.2 kg
1983	157,000**	3,592 L	129.3 kg
1984	157,000**	3,720 L	133.9 kg
1985	150,000**	3,748 L	134.9 kg
1986	152,000**	3,811 L	137.2 kg

* From 1955 forward, average butterfat test 3.5%; previous years were 3.6%.
** Census figure as of January 1 of that year.

Alberta Margarine Statistics as reported by Bureau of Statistics, Alberta Department of Industry & Commerce, are no longer available.

Estimated value of selected products (expressed in Millions) for the 1986-1987 fiscal year:

Butter	$ 40.4
Cheddar Cheese	46.0
Cheese Other than Cheddar	28.9
Fluid Milk	169.9
Other Fluid Products	42.8
Ice Cream	57.5
Miscellaneous - Concentrated and Powdered Milk, Cottage Cheese, Yoghurt, etc.	122.1